

REMARKS

By this Amendment, claims 1-2 are amended to merely clarify the recited subject matter and afford broader and clearer protection of the disclosed invention. Claims 1-8 are pending.

The Office Action objected to claims 1-4 based on certain noted informalities, which have been removed by this Amendment.

The Office Action rejected claims 1-5 and 7-8 under 35 U.S.C. 102(e) as being anticipated by Shirai et al. (U.S. 6,218,982; hereafter “Shirai”) and rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over that reference in view of Morita et al. (U.S. 5,018,582; hereafter “Morita”). Applicant traverses the rejections because the cited prior art references, analyzed individually or in combination, fail to disclose teach or suggest the claimed invention.

For example, the cited prior art references fail to disclose, teach or suggest “a method of calibrating a system which includes a device for differentially amplifying low frequency components and high frequency components in a received signal, and in which the amplified signal is transmitted from a first end of a transmission line to a second end of the transmission line, the method including “using the device to amplify low frequency components and high frequency components in the generated pulses to different degrees to form a modified pulse, and transmit the modified pulses along the line from the first end. . . and increasing the degree to which high frequency components are amplified relative to low frequency components until the measured duration of the received pulses is equal to the known duration of the generated pulses to within a predetermined tolerance,” as recited in independent claim 1 and its dependent claims. Similarly, the cited prior art references fail to disclose, teach or suggest a data transmission system which includes “a control unit for controlling the pre-emphasis unit to increase the degree to which high frequency components are amplified relative to low frequency components until the measured duration of the received pulses is equal to the known duration of the generated pulses to within a predetermined tolerance,” as recited in independent claim 5 and its dependent claims.

Shirai merely discloses a distance measurement apparatus of the type that would be positioned on the front of a vehicle and used to measure the distance between the vehicle and some other preceding target object such as another vehicle. See, for example, the description at column 4, lines 1 to 5. In Shirai, the system enables an accurate determination to be made of the separation of the vehicle from some “preceding target object”, e.g. such as a preceding

vehicle (column 3, line 66 to column 4, line 5). In the disclosed system, a “matched filter” 22 is used to perform a correlation (column 5, lines 35 to 50) of a transmitted signal and a (reflected) received signal. A processor then determines a distance between the transmitter (and hence the vehicle) and the preceding target object based on the result of the correlation (column 6, lines 27 to 30). This produces a “first result,” which is then adjusted based on a second correlation performed using a second different transmitted signal (column 6, lines 31 to 60) to prove a more accurate determination of the distance between the vehicle and the preceding target object.

However, Shirai fails to disclose, teach or suggest any amplification of low frequency components and high frequency components in generated pulses to different degrees to form a modified pulse. Similarly, Shirai fails to disclose, teach or suggest transmission of the modified pulse along a transmission line or increasing the degree to which high frequency components are amplified relative to low frequency components until the measured duration of a received pulse is equal to some known duration of the generated pulse.

The Office Action is incorrect in its assertion that the claimed amplification of low frequency components and high frequency components in the generated pulses to different degrees to form a modified pulse” is disclosed by Figure 1, element 14; column 4, lines 17 to 27 and column 6, lines 36 to 40. In fact, element 14 in Figure 1 is merely a transmitting portion, which has nothing to do with amplification. The Office Action has also incorrectly referred to irrelevant passages of Shirai, for example, column 4, lines 17 to 27 (referring to a light emitting portion for transmitting an amplitude modulated light signal), and column 6, lines 36 to 40 (referring to a signal having the duration of one clock cycle). Shirai simply fails to disclose, teach or suggest use of a device to amplify low frequency components and high frequency components in generated pulses to different degrees to form a modified pulse.

The Office Action further asserted that a driving circuit is used to amplify low frequency components and high frequency components to different degrees to form a modified pulse and increase the degree to which high frequency components are amplified relative to low frequency component until the measure duration of received pulses is equal to the known duration of the generated pulses. In particular, the Office Action asserted that Shirai discloses the idea of increasing the degree to which high frequency components are amplified relative to low frequency components with reference to element 18 in Figure 1 and the description at column 5, lines 5 to 67, column 6, lines 1 to 60 and column 11, lines 25 to 30.

However, the cited passages do not describe subject matter associated with Figure 1. Rather, column 5, lines 5 to 67 merely discloses a light receiver 60, an amplifier 80 and a comparator 20 serving to generate an output binary signal representative of the received reflected signal. That passage further discloses a matched filter 22 that performs a correlation of the received signal with a transmitted signal. Similarly, column 6, lines 1 to 60 merely disclose the determination of “first time data D1” and use of this to calculate a distance between the vehicle and the target object (column 6, lines 31 to 32). The description then describes how an error in distance is calculated using a second time data “D2.” Finally, column 11, lines 25 to 30 contains simply describes the generation of a “single high-level pulse having a duration equal to 1 period of the reference clock signal.”

Element 18 of Figure 1 is merely an amplifier that amplifies a photo-generated current received from the photodiode 16 (see, e.g., column 5, lines 3 to 14) but does not serve to increase the degree to which high frequency components are amplified.

Therefore, Applicant submits that Shirai, when correctly interpreted, fails to disclose, teach or suggest all the features recited in independent claims 1 (directed to a method of calibrating a system which includes a device for differentially amplifying low frequency components and high frequency components in a received signal) and 5 (directed to a data transmission system which includes a control unit for controlling the pre-emphasis unit to increase the degree to which high frequency components are amplified relative to low frequency components until the measured duration of the received pulses is equal to the known duration of the generated pulses to within a predetermined tolerance) and their respective dependent claims.

Morita fails to remedy these deficiencies of Shirai because Morita merely relates to a pulse Doppler ultrasonic diagnostic system. Therefore, independent claims 1 and 5 and their dependent claims are patentable over Shirai and Morita, analyzed individually or in combination.

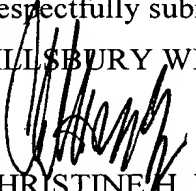
Applicant also traverses the 35 U.S.C. 103 rejection of claim 6 because a person skilled in the art of vehicle distance detection systems would not have looked to Morita, a document relating to an ultrasonic diagnostic system, to develop a distance measuring apparatus. Accordingly, a skilled person would not have combined the teachings of Shirai and Morita.

Further, dependent claim 6 is patentable over Shirai and Morita for the additional reason that, even if a skilled person were to have combined the teachings of Shirai and

Morita, he would not have arrived at a data transmission system as recited in claim 6, which recites (by dependency on claim 5) a pre-emphasis unit for receiving a signal, and differentially amplifying low frequency components and high frequency components in the signal and transmitting the amplified signal into a first end of a transmission line. Neither Shirai or Morita discloses, teach or suggest such a feature. Accordingly, claim 6 is not obvious in view of Shirai and Morita.

All objections have been addressed. If anything further is necessary to place the application in condition for allowance, Applicant requests that the Examiner contact Applicant's undersigned representative at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
PILLSBURY WINTHROP LLP

CHRISTINE H. MCCARTHY
Reg. No. 41844
Tel. No. 703. 905.2143
Fax No. 703 905.2500

Date: December 21, 2004
P.O. Box 10500
McLean, VA 22102
(703) 905-2000